

A REVIEW OF THE AUSTRALIAN SPECIES OF *SARCOCHILUS* (ORCHIDACEAE).

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(One Text-figure.)

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Synopsis.

Sixteen valid species of the genus are recognized in this review, including one (*S. tricallatus*) newly admitted to specific rank. Nine excluded species are listed at the end of the review.

Some different conceptions of the character of *Sarcophilus* are briefly discussed, and a description of the genus as understood by the author is given. The remainder of the paper consists of notes on the individual species. In the case of *S. australis* Lindl., which F. M. Bailey recorded for Queensland under the synonym *S. parviflorus*, the author expresses the view that there are no authentic records of this species occurring north of Gosford, N.S.W., and that the Queensland record should probably be applied to *S. spathulatus* Rogers.

Considerable difficulty is experienced in attempting to decide between varying interpretations of the genus *Sarcophilus*, which Pfitzer places between *Grosourdyia* Rehb. f. and *Dendrocolla* Bl., in the sub-tribe Aerideae of the tribe Sarcanthinae. The late J. J. Smith, in *Blumea*, I, 1 (1930), pp. 194-215, described *Sarcophilus* as distinguished by a long straight column with a very short foot, and a lip with a very small pit at the base. If this description is to be generally accepted, it seems to me that it will mean the removal of all our Australian species to some other genus or genera. For with the possible exception of *S. australis* Lindl., they are all distinguished by a short column with a long foot, to which the lateral sepals are usually adnate; and in most instances the "pit" or sac, situated below the mid-lobe of the labellum, is relatively large. As I have not been able to ascertain whether J. J. Smith's interpretation as given above is generally acceptable, in this review I have retained the older conception of the genus, in which the column is short with a long foot. So far as I am aware, no one up to the present has proposed to remove the Australian species on the ground of their incompatibility with J. J. Smith's description. On other grounds, various authors have from time to time transferred to other genera quite a number of Australian plants previously included in *Sarcophilus*, as will be seen from the list of "Excluded Species" at the end of this review. The latest of these removals is proposed by the present writer in the *Victorian Naturalist*, Vol. 67 (1951), 206, where Mueller's *S. divitiflorus* is made the type of a new genus to be known as *Rhinerrhiza*. With the exclusion of this plant, there remain sixteen Australian species to be reviewed, viz.:

1, *S. Fitzgeraldii*; 2, *S. Hartmannii*; 3, *S. falcatus*; 4, *S. Weinthalii*; 5, *S. australis*; 6, *S. spathulatus*; 7, *S. olivaceus*; 8, *S. Harriganae*; 9, *S. dilatatus*; 10, *S. Longmanii*; 11, *S. Bancroftii*; 12, *S. Ceciliae*; 13, *S. Hillii*; 14, *S. tricallatus*; 15, *S. eriochilus*; 16, *S. minutiflos*.

Before proceeding to review these in detail, however, I wish to submit the following brief description of the genus itself as I understand it.

SARCOCHILUS R.Br.

Epiphytes or rock plants, usually rather small. Stems short. (Exception in Australia, *S. Fitzgeraldii*.) Leaves from broadly lanceolate to linear, often more or less falcate and usually distinctly channelled above. Racemes emerging below the leaves. Flowers from a few mm. to 3 cm. in diameter, racemose, often numerous and showy, in some species very fragrant. Sepals and petals approximately equal, free, relatively broad at least in the distal portion, the lateral sepals usually more or less dilated at the base and adnate to the foot of the column. Labellum articulate at the base of the column-foot, spurless, trilobate. Lateral lobes erect, relatively large, curving inward;

mid-lobe usually very short, with a rather conspicuous sac or protuberance below, projecting in front; disc with a few stalked calli. Column short, with a long foot; anther operculate; stigma semicircular to oblong; pollinia 2.

An illuminating article on the genus by the late Dr. R. S. Rogers will be found in the *Australian Orchid Review*, Vol. II, No. 3 (Sept., 1937), pp. 9-12. One or two corrections are required. (The name is several times misspelt *Sarchochilus*, but this is probably a printer's error.) On p. 10 the author states, "In habit the genus *Sarcochilus* may be distinguished from *Thrixspermum* by the elongated inflorescence of the former, on which all the flowers of a raceme open on the same day, or else begin to bloom suddenly in series on a gradually lengthening inflorescence". This is not correct, at least so far as Australian species are concerned. The only Australian species with elongated racemes on which all the flowers open on the same day is *S. divitiflorus* F. Muell., now removed from the genus. I know of no species in which the flowers begin to bloom suddenly in series on a gradually lengthening inflorescence, nor can I find any observer who does. Dr. Rogers remarks that *Thrixspermum* had not been reported from Australia at the time of writing; but Schlechter in 1911 (*Orchis*, v. 55) had removed *S. platystachys* F. M. Bail. to that genus, and the transfer is not likely to be challenged. Rogers gave the number of Australian species of *Sarcochilus* in 1937 as "17 (perhaps 18)". Presumably he included *S. phyllorhizus* F. Muell. (now transferred to *Chiloschista*) as well as *S. platystachys*. I do not know what his possible 18th species was, but he felt some uncertainty as to the status of *S. falcatus* var. *montanus*, which R. D. Fitzgerald originally published as *S. montanus*. Fitzgerald's reduction of it to a variety of *S. falcatus*, however, has been generally endorsed. The exclusion of *S. phyllorhizus*, *S. platystachys*, and *S. divitiflorus* would reduce the number given by Rogers to 14; but to these are now added *S. Harriganae* and *S. tricallatus*, the latter being described here as a species for the first time.

A Key to the Species.

1. Sepals and petals from broad-lanceolate to almost orbicular.
 2. Stems often rather long, scrambling on rocks, with somewhat flaccid leaves. Flowers white or pink with maroon blotches *S. Fitzgeraldii*. 1.
 - 2'. Stems always short.
 3. Robust plant; leaves in the typical form large, rigid, deeply channelled. Flowers white with maroon centre *S. Hartmannii*. 2.
 - 3'. Plants less robust than the last. Leaves shallowly channelled, often more or less falcate.
 4. Flowers white or pink.
 5. Leaves moderately broad, light green, falcate. Flowers up to 3 cm. in diameter white with orange and reddish-purple markings on the lateral lobes of the labellum, and often on the labellar sac *S. falcatus*. 3.
 - 5'. Leaves linear, channelled. Small plants with small flowers.
 6. Leaves more or less spotted, dull green.
 7. Flowers bright pink, almost campanulate *S. Ceciliae*. 12.
 - 7'. Flowers pink or white, expanding widely *S. Hillii*. 13.
 - 6'. Leaves not spotted, light green. Flowers white; labellum with three conspicuous calli *S. tricallatus*. 14.
 8. Lateral lobes of labellum densely pubescent or hairy *S. eriochilus*. 15.
 - 8'. Lateral lobes of labellum glabrous. Flowers very diminutive *S. minutiflos*. 16.
 - 4'. Flowers neither pink nor white.
 9. Flowers brick red *S. Bancroftii*. 11.
 - 9'. Flowers never red.
 10. Flowers cream, blotched with dull purple *S. Weinthalii*. 4.
 - 10'. Flowers yellow *S. Longmanii*. 10.
 - 1'. Sepals and petals narrow for their basal third, then expanding rather broadly.
 11. Sepals dilated into a rhomb above the narrow basal portion *S. dilatatus*. 9.
 - 11'. Sepals expanding to lanceolate above the narrow basal portion.
 12. Lateral lobes of the labellum spatulate.
 13. Labellar sac with bright purple markings *S. spathulatus*. 6.
 - 13'. Labellar sac pale green *S. Harriganac*. 8.
 - 12'. Lateral lobes of the labellum oblong to ovate.
 14. Flowers old-gold or olive-green *S. olivaceus*. 7.
 - 14'. Flowers brownish-green; labellum white with purple and yellow markings *S. australis*. 5.

1. *S. Fitzgeraldii* F. Muell., *Fragm.*, vii, 1870, 115; Benth., *Fl. Austr.*, vi, 1873, 293; R. D. Fitzg., *Austr. Orch.*, i, 3, 1877; *Austr. Orch. Rev.*, i, No. 1, 1936, 10, and ii, No. 3, 1937, 9-10; Rupp, *Orch. N.S.W.*, 1943, 136.

This is the largest and, in the opinion of many, the most beautiful, of all Australian species of the genus. Mueller (*l.c.*) hints at the possibility of its proving to be a variety of *S. falcatus* R.Br.; while Bentham, followed by F. M. Bailey, states, "Stem, foliage, and general aspect of *S. falcatus*". It is difficult for anyone well acquainted with both plants to perceive this supposed resemblance. Fitzgerald makes no allusion to it. *S. falcatus* is a true epiphyte, always found on trees, short-stemmed, with light green leaves and short racemes. *S. Fitzgeraldii* is an extensively spreading, branching plant which scrambles along cliffs and on rock-ledges in deep ravines; the leaves are dark green, and the racemes are on long, stout peduncles. Bentham probably lacked a sufficiency of good material, and of course he had never seen the plant growing; but it is curious that Bailey, who must surely have seen it in southern Queensland, should have repeated Bentham's remark without comment.

The precise colouring of the flowers varies a good deal, but typically it may be described as white with crimson or maroon blotches. Plants are occasionally found with pure white flowers. The variety *aemulus* (These *PROCEEDINGS*, 69, 1944, p. 73) was found by the present writer some 20 miles from the site of Fitzgerald's original discovery at the Naroo Falls on the Bellinger River, N.S.W. Its flowers are light crimson with deep maroon blotches.

Although the species is not uncommon in gorges of the eastern slopes of the Dividing Range in northern New South Wales and southern Queensland, its distribution appears to be confined to these areas. There are no definite records of its occurrence south of the Hastings Valley in New South Wales, nor has it been found north of the Brisbane River in Queensland. It responds fairly well to cultivation, provided the requisite humidity and temperature are available; it does best in moderate shade, with a rock to scramble on.

2. *S. Hartmannii* F. Muell., *Fragm.*, viii, 1870, 248; F. M. Bailey, in *Q'land Fl.*, v, 1902, 1551, plate lxvii; *Austr. Orch. Rev.*, i, No. 1, frontispiece; Rupp, *Orch. N.S.W.*, 1943, 137.

Although obviously closely related to the preceding species, this species is quite distinct, with a different habit. It grows on both rocks and trees, and likes a bright, sunny situation. It is a more variable plant than *S. Fitzgeraldii*. In the typical form the stem is erect, but short; the leaves are large, rigid, and deeply channelled. Bailey, however, identified Fitzgerald's *S. rubicentrum* (*Austr. Orch.*, ii, 1, 1884) with *S. Hartmannii*, and his view is generally accepted; but there is some difference between the two forms, *rubicentrum* being less erect, with smaller leaves and flowers. There is some mystery about the habitat of the plant figured by Fitzgerald; see footnote to the description of *S. Hartmannii* in *Orch. N.S.W.*, *l.c.* Diligent search by several capable collectors in the Cairns district during the past twenty years has failed to discover any orchid resembling Fitzgerald's plate, and it seems probable that the plant he received from E. Ramsay had been cultivated at Cairns. The experience of botanists and collectors suggests that the habitat of *S. Hartmannii* is even more restricted than that of *S. Fitzgeraldii*, and is practically confined to the Macpherson Range in southern Queensland, and one or two localities just on the New South Wales side of the border.

The flowers of *S. Hartmannii* vary a good deal in dimensions; sometimes they are as large as those of *S. Fitzgeraldii*, but more commonly they are smaller. They are in a more compact raceme, borne on a long, stout peduncle. Usually they are white with maroon spots at the base of the perianth; but pure white flowers are sometimes found. The species is more easily cultivated than *S. Fitzgeraldii*.

Synonymy.—*Sarcochilus rubicentrum* Fitzg., *Austr. Orch.*, ii, 1, 1884.

3. *S. falcatus* R.Br., *Prodr.*, 1810, 332; Benth., *Fl. Austr.*, vi, 1873, 293; Fitzg., *Austr. Orch.*, i, 5, 1879; *Austr. Orch. Rev.*, i, 3, 1936, frontispiece; Rupp, *Orch. N.S.W.*, 1943, 132; Barrett and Nicholls, "Gems of the Bush", 1934, 9.

Generally known as the "Orange Blossom Orchid", this attractive little species is a familiar wildflower in many parts of the coastal belt of eastern Australia, and it ascends to a considerable altitude on the Dividing Range and its spurs. As might be expected in view of its extensive distribution, it varies considerably from the typical form; but the variations rarely tend to obscure its identity. R. D. Fitzgerald, indeed, described and figured one form (Austr. Orch., *l.c.*) as a distinct species (*S. montanus*); but subsequently, in Moore and Betcher's "Handbook of the Flora of N.S.W.", he reduced this to a variety of *S. falcatus*. In the foothills of many mountain ranges, intermediates between it and the type-form are so numerous that it is hardly desirable to perpetuate the varietal status. One of the most distinctive forms known to me is found growing on the Negrohead Beech (*Nothofagus Moorei*) near Barrington Tops, about sixty miles north of Newcastle, N.S.W. This plant is more robust than usual, and the flowers are of a rich cream colour, with a tuberoso perfume. Another distinct form occurs on the Atherton Tableland in North Queensland, more than a thousand miles away. In this case the plant is very small, but the flowers are well above average size, heavily stained with deep purple markings, and with a distinctive perfume.

As indicated above, the range of *S. falcatus* is very extensive. From the Cann River in eastern Victoria to the Atherton Tableland in North Queensland, the distance is approximately 1,500 miles, but in and near the rain forests of many areas along this great stretch of country, the "Orange Blossom" may be found.

Synonymy.—*Thrixspermum falcatum* (R.Br.) Rehb. f., Beitr. 46, and Xen. Orch., ii, 122.

4. *S. Weinthalii* F. M. Bail., Q'land Agr. Journ., xiii, 1903, 346, and xxviii, 1912, 448; also in Compr. Cat. Q'land Pl., p. 534; Rupp, Orch. N.S.W., 1943, 134.

This plant when not in bloom is hardly distinguishable from smaller forms of *S. falcatus*. The flowers, numbering from 3 to about 12, are cream or white, blotched with dull reddish-purple, and the lateral lobes of the labellum are very narrow, with purple spots. The species seems to be very rare, being known only in one or two localities in southern Queensland, and near Kyogle in the far north of New South Wales.

5. *S. australis* (Lindl.) Rehb. f., Walp. Ann., vi, 501, and Xen. Orch., ii, 122; Rupp, Orch. N.S.W., 1943, 134, plate xxiii; Fitzg., Austr. Orch., i, 3, 1877 (as *S. parviflorus*).

This very attractive little orchid was for many years better known as *S. parviflorus* Lindl. But Lindley had originally named it *Gunnia australis*, and the priority of the latter specific name is beyond question. As it happens, it is a far more suitable name than *parviflorus*; for while there are several species with smaller flowers, no other extends so far south, this being one of the only two epiphytic orchids occurring in Tasmania, where it was discovered by Ronald Gunn more than a century ago.

The species is recorded by F. M. Bailey for southern Queensland, but the record is very vague, and no Queensland specimens are known at present. In my opinion, *S. australis* does not extend farther north than the rain forests near Gosford in New South Wales. I believe that the Queensland records should be applied to the allied species *S. spathulatus* Rogers, which resembles *S. australis* both in habit and in superficial appearance. It probably passed for the latter for many years, for it was not till 1927 that the late Dr. Rogers described and named *S. spathulatus* from specimens found on Tamborine Mountain in southern Queensland. For more than twenty years I have tried to trace *S. australis* at least as far north as the Hunter Valley in New South Wales; but Gosford remains the nearest approach (50 miles south of the Hunter). Unless direct evidence of the occurrence of this species in Queensland is forthcoming, I think it should be deleted from the orchid flora of that State.

It is one of the daintiest and most attractive of the smaller Australian orchids. Occasionally stems are elongated to as much as 20 cm.; but more usually they are quite short. Racemes in well-developed plants are often numerous, each bearing from 5 to about 14 very fragrant flowers, brownish-green with a white labellum, variably splashed with purple, red, or yellow. Column relatively longer than in other species. The plant is most frequently found growing on twigs of small trees and shrubs, in moist gullies.

In Tasmania it is confined to rain forests in the north and west of the State. In Victoria, Mueller recorded it from Apollo Bay; but this is the only known record west of Port Phillip. It is not uncommon from the Dandenong Ranges eastward. In New South Wales there are records from Braidwood, Picton, Campbelltown, the Blue Mountains, National Park, northern arms of Port Jackson, Hawkesbury River, and Gosford.

Synonymy.—*Gunnia australis* Lindl., Bot. Reg., 1834, sub t. 1699; Hook. f., Fl. Tasm., ii, 1860, 33, t. 128; *Sarcochilus parviflorus* Lindl., Bot. Reg., 1838, Misc. 34; Benth., Fl. Austr., vi, 1873, 294; Fitzgerald, Austr. Orch., i, 3, 1877; *Sarcochilus Gunnii* F. Muell., Fragm., i, 1859, 90; *Sarcochilus Barklyanus* F. Muell., l.c., 89; *Thrixspermum parviflorum* Rehb. f., Xen. Orch., ii, 122; *Thrixspermum australe* Rehb. f., l.c.

6. *S. spathulatus* Rogers in Trans. Roy. Soc. S. Austr., li, 1927, 1; Rupp, Orch. N.S.W., 1943, 136; Barrett and Nicholls, "Gems of the Bush", 1934, 8.

I cannot agree at all with Murray Cox (Cultural Table of Orchidaceous Plants, 1946, p. 274) that this species in any way resembles *S. Hillii*; except perhaps in its habit of growing on twigs. It does, however, closely resemble *S. australis*, and could easily be mistaken for that species. The plant is, I think, consistently smaller, and the stem is never elongated. The flowers are quite as large as those of *S. australis*, and are somewhat similarly coloured, but they are never numerous. The specific name was chosen in allusion to the conspicuously spathulate lateral lobes of the labellum.

The species was discovered on Tamborine Mountain, Queensland, in 1925, by Mrs. H. Curtis; just a week later I found it in the southern foothills of Barrington Tops in New South Wales. Between these two localities it is not uncommon in coastal rain forests; it has not been seen south of the Hunter Valley, or north of the Brisbane River.

7. *S. olivaceus* Lindl., Bot. Reg., 1839, Misc. 32; Benth., Fl. Austr., vi, 1873, 293; Fitzg., Austr. Orch., i, 5, 1879; Rupp, Orch. N.S.W., 1943, 134.

Bentham remarks, "Sepals and petals of a dull pale purple or yellowish-brown". This is a very unsatisfactory description; there is no purple at all. It is difficult to define the colour; Fitzgerald's plate does not do it justice. I think "old gold" is as near as one can get to it—an uncommon shade of golden green. The flowers are deliciously perfumed, and are more numerous than Bentham supposed—I have counted 11 on one raceme. When not in bloom this species is sometimes mistaken for *S. falcatus*; but the leaves are thinner, and of a darker green. Bentham united Mueller's *S. dilatatus* with *S. olivaceus*, but there are ample grounds for specific distinction. W. H. Nicholls has described a distinct form from North Queensland as var. *borealis*. (N. Q'land Naturalist, Dec., 1939.) It has darker flowers, blotched with deep red-brown.

The species extends from at least as far south as the Shoalhaven River in New South Wales, northward into the tropics of Queensland.

Synonymy.—*Thrixspermum olivaceum* Rehb. f., Xen. Orch., ii, 122.

8. *S. Harriganæ* Rupp in These Proc., lxiii, 1938, 128.

Unfortunately the type specimen of this species was inadvertently destroyed, and at present no others are available. It is a rare plant, apparently confined to part of the Dorriggo highlands in northern New South Wales. The plant itself somewhat resembles a small *S. falcatus*, but the leaves are usually marked with irregular rows of dark dots. The dull-green flowers almost suggest a natural hybrid *S. olivaceus* × *S. spathulatus*; their general conformation agrees with the former, while the lateral lobes of the labellum are definitely spathulate. The dorsal sepal is very broad.

9. *S. dilatatus* F. Muell., Fragm., i, 1859, 191; Rogers, Trans. Roy. Soc. S. Austr., li, 1927, 291.

As stated above, Bentham united this little species with *S. olivaceus*. Rogers, however, makes it clear that Mueller was justified in giving it specific rank. It never attains the dimensions often reached by *S. olivaceus*, and the flowers (1 to 5) are correspondingly smaller. The sepals and petals are pale green basally, shading to deep brown at their distal ends. In the sepals the narrow claw forming the basal half is dilated terminally into a rhomb; in the petals it merely becomes spathulate. The whitish labellum is unlike that of *S. olivaceus*.

S. dilatatus has not yet been found outside southern Queensland. Mr. Trevor Hunt, of Ipswich, writes, "I have found this species always in the thick, semi-dry vine scrubs of the hilltops, at elevations up to 1,000 ft. These scrubs are in the nature of residuals of the once dense scrubs covering hilly parts of the coast plain". Recently I received numerous specimens from Mr. W. W. Abell, of Durong State School, near Tingoora, on the Kingaroy line.

10. *S. Longmanii* F. M. Bail., Q'land Agr. Journ., xxiii, 1909, 261; *ibid.*, xxviii, 1912, 449; *Compr. Cat. Q'land Pl.*, p. 532.

Bailey's description of this species calls for no comment. The plant closely resembles *S. Weinthalii*, but the flowers are a little smaller, and of a light yellow colour. It is a rare species, being recorded only on the slopes of the main Dividing Range in the Toowoomba district of southern Queensland.

11. *S. Bancroftii* F. M. Bail., Q'land Agr. Journ., xxviii, 1912, 450; *Compr. Cat. Q'land Pl.*, p. 532.

Nothing is known of this species at present beyond Bailey's description and figure. The latter shows a small plant similar to *S. Weinthalii* and *S. Longmanii*. The only record is that of Bancroft from Eidsvold, Queensland, in 1912. It is most desirable that efforts should be made to re-discover this orchid, the flowers of which are described as "brick-red". In this respect it must present a striking contrast to all the other species.

12. *S. Ceciliae* F. Muell., *Fragm.*, v, 1865, 42, t. 42; Benth., *Fl. Austr.*, vi, 1873, 294; Barrett and Nicholls, "Gems of the Bush", 1934, 8; Rupp, *Orch. N.S.W.*, 1943, 137.

In Mueller's plate the enlargements of an individual flower are excellent; but the figure of the plant itself (natural size) with two racemes and several leaves, shows the latter far more acuminate than is usual, and the flowers expanded too widely. The photograph by W. H. Nicholls depicts the flowers more naturally; they are almost campanulate, like inverted bells. ("Fairy Bells" is a popular name for this species.) The flowers are typically of a bright pink colour; a white-flowering form (var. *albus* Hunt) has been found in south-east Queensland. *S. Ceciliae* is a very small plant, but when growing, as it often does, on rock-ledges, it usually occurs in dense masses, the numerous flowers being quite conspicuous. If growing on trees the plants are generally solitary. The species is found in coastal forests and rocky gullies from the Macleay River in New South Wales northward into the Queensland tropics, occasionally extending to the ravines of the tablelands.

Synonymy.—*Thrixspermum Ceciliae* (F. Muell.) Rehb. f., *Beitr.*, 71.

13. *S. Hillii* F. Muell., *Fragm.*, ii, 1860, 94; *ibid.*, vii, 1870, 98; Benth., *Fl. Austr.*, 1873, 295; Fitzg., *Austr. Orch.*, i, 3, 1877; Barrett and Nicholls, "Gems of the Bush" (1934), 8; Rupp, *Orch. N.S.W.*, 1943, 138.

When not in flower, this tiny plant could be mistaken for a small *S. Ceciliae*; but it is strictly an epiphyte, and has not been recorded on rocks. Plants, however, are sometimes crowded in great numbers on the trunks of small trees such as *Backhousia myrtifolia*. The flowers expand more widely than those of *S. Ceciliae*; they are white or pink, and are very fragrant. The species has a fairly extensive range, from the south coast of New South Wales at least as far north as Rockhampton in Queensland.

Synonymy.—*Dendrobium Hillii* F. Muell., *Fragm.*, i, 1859, 88; *Thrixspermum Hillii* (F. Muell.) Rehb. f., *Beitr.*, 71.

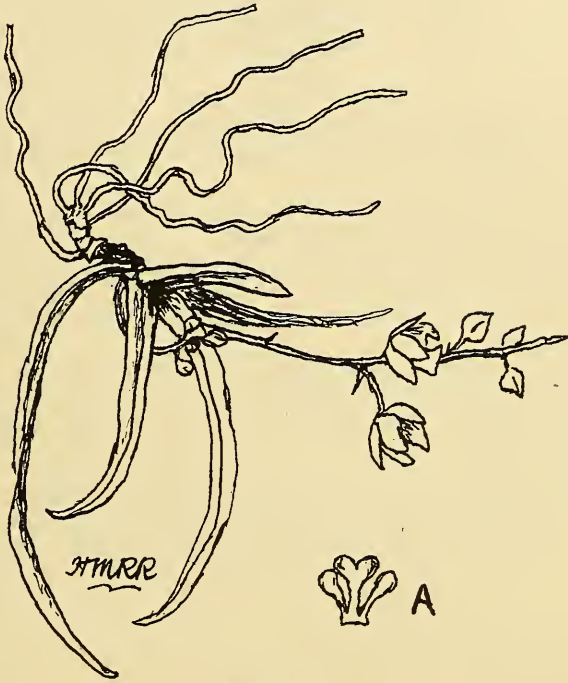
14. *S. tricalliatum* (Rupp) Rupp, n. sp. (Text-fig. 1).

Planta parva caule brevissimo. Folia pallida, immaculata, linearia, canaliculata, usque ad 7 cm. longa. Flores 2-5, albi, inodorati. Sepala petalaeque latissime lanceolata, patentia, circa 5 mm. longa. Labelli lobi fere aequales, intus rubri; lobus intermedius marginibus aurantiacis, paulum pubescens. Discus callis clavatis conspicuis 3, callus intermedius magnus, aneeps. Columna non dentata.

A small plant with a very short stem. Leaves pale green, unspotted, linear, channelled, up to 7 cm. long. Flowers white, 2 to 5, without any perfume. Sepals and petals very broadly lanceolate, about 5 mm. long, spreading. Labellum trilobate,

the three lobes approximately equal; midlobe with orange margins, only slightly pubescent. Disc with three rather stout clubbed calli, the middle one larger than the others, and double-headed. Column devoid of teeth.

Specimens sent to me in 1935 from Mount Dryander, by Mr. K. MacPherson of Proserpine, North Queensland, flowered the next year in February. At the time I thought the plant could be regarded as a northern variety of *S. Hillii*, and I provisionally named it *S. Hillii* var. *tricallatus* (N.Q. Naturalist, May, 1936, 31). But for some years past I have felt that the differences are sufficient to warrant the raising of the Mount Dryander plant to specific rank. It has not been found in any other locality.



Text-fig. 1.

Sarcophilus tricallatus, n. sp. Nat. size. A, the 3 calli on the disc of the labellum (enlarged).

15. *S. eriochilus* R. D. Fitzg., Journ. Bot., xxix, 1891, 153; Rupp, Orch. N.S.W., 1943, 137.

I regret that I have nothing to add to the remarks made on this species in the work last cited. Apparently it is extremely rare. As the Tweed River, on the New South Wales-Queensland border, is the only locality where it has been recorded, it is possible that the clearing of the forests along that stream has exterminated it.

16. *S. minutiflos* F. M. Bail., Compr. Cat. Q'land Pl., pp. 845-847.

This species has been recorded only from Eidsvold in Queensland. There are specimens in the Brisbane and Sydney Herbaria, but beyond these little is known of it. Following is Bailey's description: "On branchlets of shrubs and trees. Roots very long and slender, white and more or less curled. Stem very short. Leaves several, slender, 2-4 inches long and about 2 lines broad, sometimes dotted. Racemes mostly very slender, from 2 to 6 inches long, sometimes forked, bearing throughout their whole length, or nearly so, very numerous minute flowers. Flowers on slender pedicels of about two lines, nearly globular from the incurving of the sepals and petals, of a greenish white sometimes tinged with pink, and less than two lines in

diameter. Bracts minute. Sepals somewhat longer than the petals. Labellum small, lateral lobes purplish, blunt, ovate-oblong, middle lobe stalked, for the greater part composed of a globular mass of glandular white hairs. Discal calli orange yellow. Column short, anther lid stained with purple. Capsules narrow, straight, 2-2½ in. long."

Excluded Species.

S. Armitii F. Muell., *Fragm.*, ix, 49 (*Cleisostoma Armitii* F. Muell., *l.c.*).

The rightful position of this plant has not been definitely settled. The type in Mueller's herbarium is too fragmentary to be of very much use, and no other specimens have been clearly recognized as such. My own opinion now is that *Saccolabium orbiculare* (Rupp) Rupp, in *Vict. Nat.*, 67, 1941, 220, is really identical with Mueller's plant, and should in future be known as *Saccolabium Armitii*.

S. Baileyi F. Muell., *Herb.*, is *Taeniophyllum Muelleri* Lindl., *Herb.*, Benth., *Fl. Austr.*, vi, 291.

S. Beckleri (F. Muell. ex Benth.) F. Muell., *Cens. Austr. Pl.*, 1882, 111, is *Sarcanthus Beckleri* (F. Muell. ex Benth.) Rupp, *Vict. Nat.*, *l.c.*

S. calcaratus (F. Muell.) F. Muell., *Fragm.*, ii, 192, is *Sarcanthus tridentatus* (Lindl.) Rupp, *Vict. Nat.*, *l.c.*, 218.

S. divitiflorus F. Muell. ex Benth., *Fl. Austr.*, vi, 292, is *Rhinerrhiza divitiflora* (F. Muell.) Rupp, *Vict. Nat.*, Vol. 67, 1951, 206.

S. Newportii F. M. Bail., *Q'land Fl.* v, 2014, is *Bulbophyllum Newportii* (F. M. Bail.) Rolfe, *Orch. Rev.* (London), xvii, 94.

S. phyllorhizus F. Muell., *Fragm.*, v, 201, is *Chiloschista phyllorhiza* (F. Muell.) Schltr., *Engl. Bot. Jahrb.*, lvi, 492.

S. platystachys F. M. Bail., 1st Suppl. Syn. *Q'land Fl.*, 56, is *Thrixspermum platystachys* Schltr., "*Orchis*", 1911, v. 155.

S. tridentatus (Lindl.) Rehb. f., *Walp. Ann.*, vii, 98, is *Sarcanthus tridentatus* (see *S. calcaratus* above).

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